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- [54] **METHOD OF GLUCOSE STABILIZATION AND ANALYSIS IN DRIED BLOOD SPOT SAMPLES**
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- [58] Field of Search **436/14, 18, 66, 95, 436/176, 178, 811, 826**

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,171,961	8/1938	Fortune	436/95
2,206,282	7/1940	Jacobius	436/95
2,863,733	12/1958	Drey	436/95
3,298,789	1/1967	Mast	436/95
3,350,278	10/1967	Gretton et al.	436/95
3,791,988	2/1974	Josef et al.	252/408
4,178,153	12/1979	Sodickson	23/230 R
4,391,906	7/1983	Bauer	435/14
4,551,427	11/1985	Draeger et al.	435/14
4,780,419	10/1988	Uchida et al.	436/176
4,933,145	6/1990	Uchida et al.	422/61

OTHER PUBLICATIONS

John B. Hill and Phyllis Palmer, Filter Paper Blood Collection and Punching as a Means of Quantification, *Clinical Chemistry*, vol. 15, No. 5, 1969, pp. 381-389.

Nathan Gochman and Joan M. Schmitz, Application of a New Peroxide Indicator Reaction to the Specific, Automated Determination of Glucose with Glucose Oxidase, *Clinical Chemistry*, vol. 18, No. 9, 1972, pp. 943-950.

Richard B. Passey, Ronald L. Gillum, John B. Fuller, Francis M. Urry, and Mary Louise Giles, Evaluation and Comparison of 10 Glucose Methods and the Reference Method Recommended in the Proposed Product

Class Standard (1974), *Clinical Chemistry*, vol. 23, No. 1, 1977, pp. 131-139.

Luis P. Leon, Douglas K. Chu, Lloyd R. Snyder and Csaba Horvath, Continuous-Flow Analysis for Glucose in Serum, with Use of Hexokinase and Glucose-6-Phosphate Dehydrogenase Co-Immobilized in Tubular Form, *Clinical Chemistry*, vol. 26, No. 1, 1980, pp. 123-129.

Timothy R. Gamlen, Howard C. James & Gifford F. Batstone, The Determination of Blood Spot Glucose Concentration Using a Rapid Kinetic Assay, *Scan. J. Clin. Lab. Invest.*, 42, 1982, pp. 643-645.

Henning von Schenck, Linnea Lonnstrom, and Margareta Engstrom, Quality Control of Reflectometric Determinations of Glucose in Dried Blood Spots on Filter Paper, *Clinical Chemistry*, vol. 31, No. 5, 1985, pp. 706-709.

Jean Palardy, M.D., Jana Havrankova, M.D., Raymond Lepage, Ph.D., Ronald Matte, M.D., Raphael Belanger, M.D., Pierre D'Amour, M.D., and Louis-Georges St.-Marie, M.D., Blood Glucose Measurements During Symptomatic Episodes in Patients with Suspected Postprandial Hypoglycemia, *The New England Journal of Medicine*, vol. 321, No. 21, Nov. 23, 1989, pp. 1421-1425.

(List continued on next page.)

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[57] **ABSTRACT**

A method of stabilizing the glucose content of a blood sample applied to a sorbent for drying is provided. A solution of sodium fluoride or other glycolysis inhibitor is applied to a sorbent. A blood sample for glucose determination is then applied to the sorbent whereupon glycolysis is immediately inhibited. The blood sample may then be dried for shipping without loss of glucose content during the drying period.

22 Claims, No Drawings